ALAMEDA COUNTY
CONGESTION MANAGEMENT AGENCY

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Memorandum

March 9, 2009
Agenda Item 5.0

Date: February 27, 2009

To: **Sunol Express Lane Joint Powers Authority**

From: Ray Akkawi, Manager of Project Delivery

Subject: I-680 Express Lane Project: Status Update – Electronic Toll System

Attached for the Board's review and acceptance is the status update for the I-680 Express Lane project – Electronic Toll System. The CMA is the sponsor of the HOT element of the I-680 Express Lane. However, the construction phase of the civil elements of this project is administered by Caltrans. The status report covers all activities through February 27, 2009.

Background
The 14 mile I-680 Express Lane extends from Highway 84 in the City of Pleasanton to Highway 237 in the City of Milpitas. The project will widen the existing facility to allow the conversion of the HOV lane to Express (HOT) Lane. When the express lane is opened it will allow carpools to travel free of charge and would charge a toll for single occupancy vehicles to use the excess capacity in the High Occupancy Toll (HOT) lane. The scope of the project consists of two elements; the Civil Element, widening to accommodate HOT; and the Electronic Toll System Element that includes the Dynamic Pricing.

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Alameda County
EXPRESS LANES

I-680 HOV/EXPRESS LANE PROJECT
HOV Widening
Status UPDATE
For
February, 2009

PROJECT DESCRIPTION

The I-680 Express Lane project will allow carpools to travel free of charge and would charge a toll for single occupancy vehicles to use the excess capacity in the High Occupancy Toll (HOT) lane. This project will widen I-680 to accommodate the existing High Occupancy Vehicle (HOV) lane and the planned HOT lane; construct improvements to provide a HOT lane along southbound I-680 from State Route (SR) 84 to Santa Clara County SR 237; and rehabilitate the existing pavement.

The civil component of the project is divided into three separate contracts:
CONTRACT #1 - HOV/HOT Lane & Rehabilitation, from Grimmer Boulevard to SR 238. This contract is under construction,
CONTRACT 2 - HOV/HOT Lane & Rehabilitation, from SR 238 to Stoneridge Avenue. Favorable bids were received on December 10, 2008.
CONTRACT 3 - HOV/HOT Lane & Rehabilitation, from SR 237 to Grimmer Boulevard and Striping to SR 84. Favorable bids received on December 16, 2008.

CONTRACT &CONSTRUCTION STATUS

CONTRACT 1: Construction Status

Construction has been underway since approval of the contract in September 2008. Approximately 15% of the work has been completed and the contract target completion is at the end of this year. All capital and support costs are bond funded. Construction has not been interrupted by the state funding issues.

CONTRACTS 2 & 3: Contract Status

Contract 2 bids were open on 12/10/08 and were 26% below the engineer's estimate with a 177 working day schedule. The apparent low bidder is Bay Cities. Award of the contract is delayed due to state budget issues. The contractor has agreed to extend the bid until 3/13/09. Contract 3 bids were open on 12/16/08 and were 45% below the engineer's estimate with a 92 working day construction schedule. The apparent low bidder is Top Grade Construction. Award of the contract is delayed due to state budget issues. The contractor agreed to extend the bid until 3/13/09. Additional extensions may be requested for both contracts.

Alameda County
EXPRESS LANES

I-680 HOV/EXPRESS LANE PROJECT
Electronic Toll System
Status Report
For
February, 2009

PROJECT DESCRIPTION

The I-680 Express Lane project will allow carpools to travel free of charge and would charge a toll for single occupancy vehicles to use the excess capacity in the High Occupancy Toll (HOT) lane. This project will widen I-680 to accommodate the existing High Occupancy Vehicle (HOV) lane and the planned HOT lane; construct improvements to provide a HOT lane along southbound I-680 from State Route (SR) 84 to Santa Clara County SR 237; and rehabilitate the existing pavement.

The Electronic Toll System component of the project includes the Dynamic Pricing Software, the Vehicle Detection System, the Vehicle Tolling Devices, the Data Toll Center, the Communications / Data Transfer, and the interface with Caltrans Traffic Management Center, Bay Area Toll Authority – Tolling Center, and the California Highway Patrol.

CONTRACT STATUS

Contract Status: The Electronic Toll System (ETS) contract was awarded to ETC on December 18, 2008. The notice to proceed (NTP) to perform phase 1 of the contract, that is to coordinate with the civil contractor(s), Caltrans, and BATA was issued mid January 2009. Notice to proceed to perform the work on phase 2 of the ETS contract was issued to ETC mid February 2009.

The CMA requested that Wilbur Smith Associates (WSA) conduct a technical and cost review of two potential modifications to the Electronic Transactions Consultants (ETC) scope of work. One modification involves deploying a different type of vehicle detecting system (VDS) that would be installed in the Express Lane in lieu of the typical electrical loops. A second proposal that ETC submitted for CMA consideration was an alternative for the communications network that would be deployed between tolling zones and from the tolling zones to the Toll Data Center.

Below is the current status of each issue:

Issue 1: Vehicle Detection Equipment in the Express Lane
The Electronic Toll System (ETS) Request for Proposals (RFP) requested that each bidder present their system design, and associated costs, based upon the utilization of vehicle detector

loops in the I-680 Express Lane. The RFP further requested that each bidder should propose an alternate technical solution to using loops for this purpose if they determined that a different technical solution would enhance the system operations as it pertains to the gathering of vehicle density and speed data from the Express Lane. ETC proposed the use of loops, as was indicated in the RFP, and also proposed as an alternative the use of Sensys vehicle detection devices in lieu of the vehicle detector loops. The Sensys Networks Wireless Vehicle Detection System (Sensys) uses pavement-mounted magnetic sensors to detect the presence and movement of vehicles. The magneto-resistive sensors transmit detection data in real-time via low power radio technology to a nearby access point or controller.

Pursuant to a technical analysis that was conducted by CMA and WSA staff, including several follow-up discussions regarding the Sensys devices with ETC, it was determined that the Sensys device solution was technically equal to the deployment of loops in the Express Lane. ETC provided a written statement that this new subsystem design shall meet all of the VDS operating requirements that are presented in the RFP. WSA staff also conducted a review of third party test results of the Sensys devices and found that they have operated at a very high level for several years.

Issue 2: Alternate Communications System

The RFP made mention of the use of a WiMax wireless technology as the basis for their communications system design. In their response to the RFP, ETC specifically made reference to the use of WiMax as mentioned in the RFP, but they also proposed a communications network design that uses a different type of technology. ETC provided 3 communication alternatives to be considered by the JPA. Subsequent to an analysis of each option by CMA and WSA staff, including several discussions about the options with ETC, the option that proved to be the best choice to support the functions and operations of the Electronic Toll System (ETS) was selected. This option involves the use of "Motorola Canopy" point-to-point wireless backhaul communications system instead of the WiMax approach that was suggested in the RFP. This technology is a more a mature product and has already been deployed within the wireless community. WiMax is relatively new to the commercial industry and not yet widely accepted or deployed within the wireless community. While both technologies are wireless networks, Motorola Canopy system is a point-to-point network which has proved to be a very robust and reliable. WiMax does not currently have the level of technical support that other technologies have, including the point-to-point network.

SCHEDULE STATUS

The System Integrator baseline schedule will be revised to accommodate the aggressive civil work contractor(s) schedule. The approved baseline schedule shows the opening date of the facility is October 2010.

OUTSTANDING ISSUES/DISPUTES/CLAIMS

There are no outstanding issues

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